B-19J

MEMORANDUM

Subject: Environmental Gamma Radiation Survey, 341 East Ohio Street, Chicago - ST Project No. 1-25585-XG - Sampling Plan

From: Arthur N. Lubin, Ph.D., Statistical Expert
OSEA

To: Frederick Micke, On-Scene Coordinator
Emergency Response Section 3

I appreciate the opportunity to review the above noted sampling plan. The proposed plan to detect elliptical two meter by four meter hot spots using approximately 380 two meter square grids to detect hot spots with a surface area of approximately 68 square feet seems to be acceptable. The plan also is acceptable relative to detecting elevated contamination at multiple depths (six inch increments). I assume that if any hot spot is located that the entire partition in which the hot spot is detected would be treated as excessively contaminated for cleanup.

If you have any questions or concerns regarding this memorandum, please contact me (312) 886- 6226.

(847) 279-2472

1.5 / 1

6.3 m^2

68 ft^2

9.

Sampling

2 meters = 6.6

8 - 9 feet
west
120'

15'
east
24'

400 x

9"

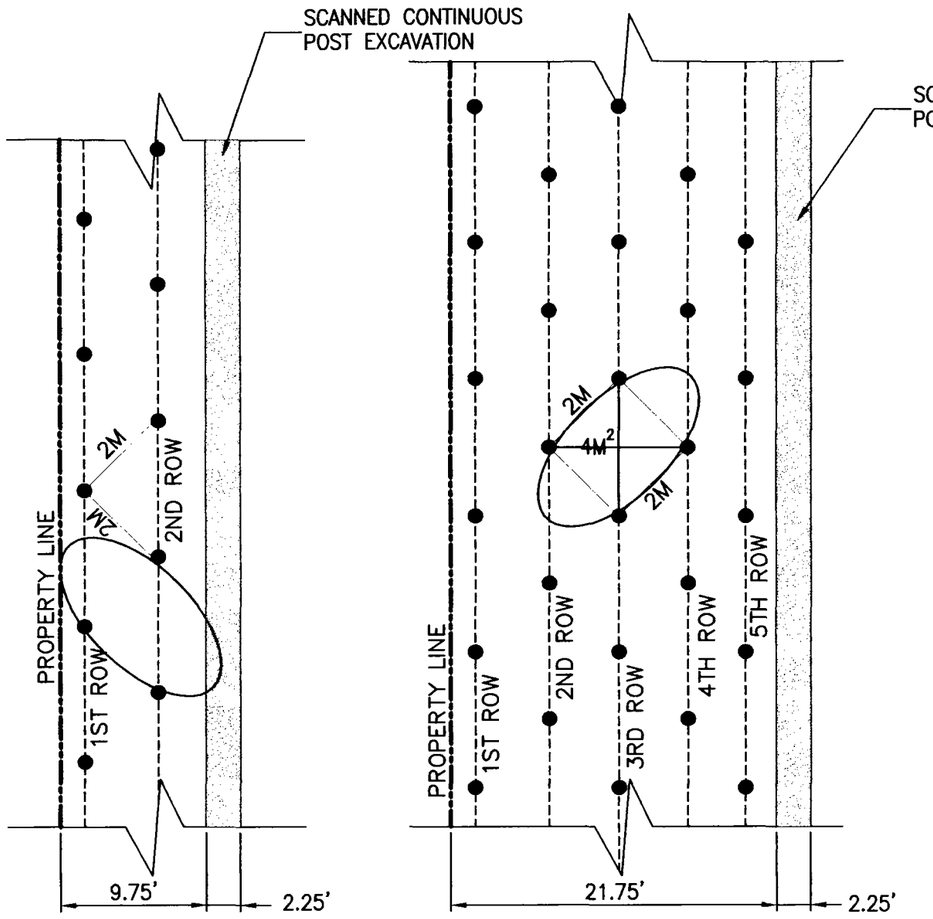
PPV

2" x 2"

no restrictions → 6" spading

2 off sets'

mars' 1 - 3



BORING LOCATIONS PARTIAL PLAN

B/1 SCALE: 5'=1"

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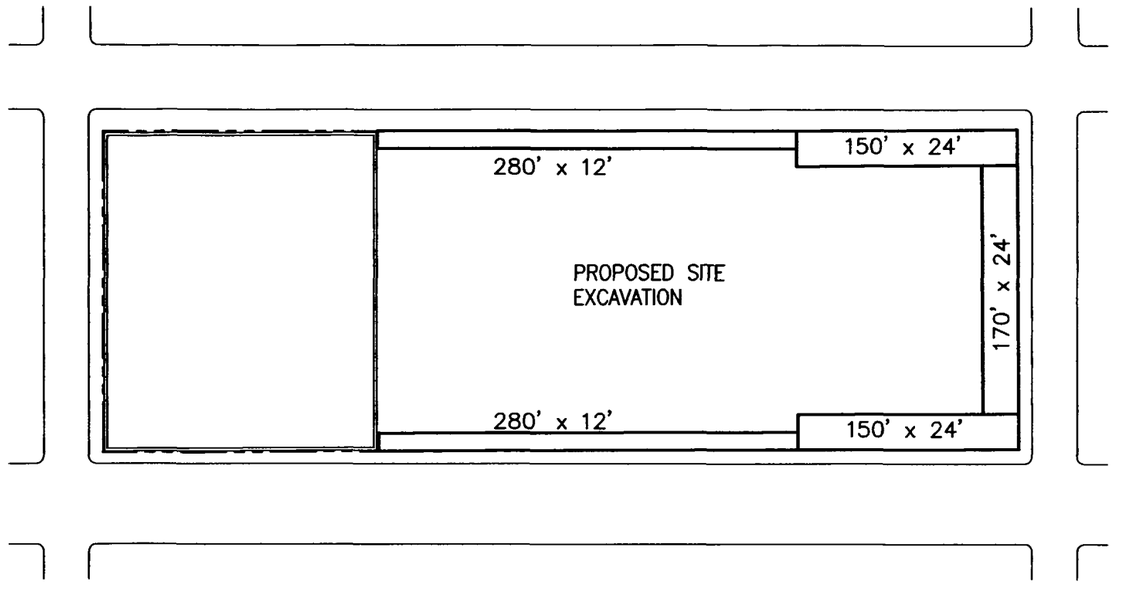
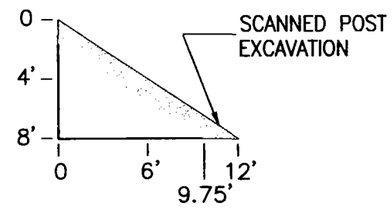


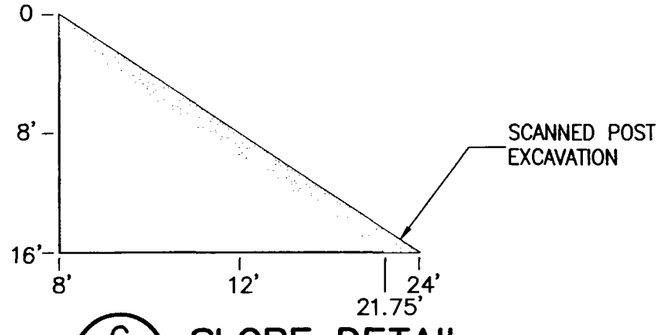
GMO SITE PLAN – SLOPE DIMENSIONS

A/1 SCALE: 100'=1"



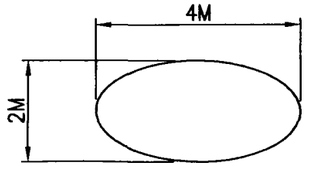
SLOPE DETAIL

B/1 SCALE: 5'=1"



SLOPE DETAIL

C/1 SCALE: 5'=1"



ELLIPSE TARGET DIMENSIONS = 2M x 4M

DRAWN BY	TJC	DATE 7/17/01
CHECKED BY	SCK	DATE 7/17/01
APPROVED BY	RGB	DATE 7/17/01
CADFILE	X:\PROJECTS\125585-xg\ER-DWGS\g125585-05.dwg 5/9/1667 9:17	

SLOPE DIMENSIONS
341 EAST OHIO
CHICAGO, IL

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO.	g125585-05.dwg
STS PROJECT FILE	25585-XG
SCALE	AS SHOWN
FIGURE NO.	1

(1)

Gamma Radiation Level Survey Procedures

1. Purpose

This procedure provides protocols for gamma radiation level surveys.

2. Scope

This procedure applies to preparation and surveys including soil in-situ, soil in backhoe buckets or on other equipment that could contain 3 dimensional recesses of soil. Results above the alarm level will be checked by the lead health physicist to ensure the accuracy of the readings. Results above the alarm level will result in the XXX directly the establishment of an exclusion zone and removal of the contaminated soil. All personnel who use the meter must read and understand sections 1-5 of the Ludlum 193 instruction manual.

Radiation level surveys will be performed at the site as part of the pre-excavation, pre-verification, and verification surveying programs.

3. References

3.1. None.

4. Equipment and Materials

The following equipment may be used as part of the survey programs. Other equipment maybe substituted if necessary because of the availability of the items listed of the conditions encountered at the site.

4.1. 2-inch by 2-inch NaI (T1) gamma detector.

4.2. A. Ludlum Model 193 survey meter MCL - River East

B. Eberline ESP-1 Backup instrument

4.3. Check Source
4.4. Cables
4.5. Survey Forms

5. Instructions for Radiological Survey

5.1. Area Survey Procedure

5.1.1. Two perpendicular baselines will be established at 5 meter intervals.

5.1.2. A grid will be established rectilinear from the baseline. If necessary, stakes, survey flags, or paint will be used to delineate grid or traverse lines.

5.1.3. The baseline, permanent structures, areas of remediation, and other areas of interest will be illustrated in the field logbook.

5.2. Gamma Survey Procedures

5.2.1. The Ludlum 193 or Eberline ESP-1 procedures are followed.

5.2.2. Hold the NaI(Tl) probe normal to the ground surface at a height of two to six inches.

5.2.3. Record results at each grid intersection.

5.2.4. Walk slowly along grid lines at a maximum speed of 0.5 meters per second (~1 miles per hour).

5.2.5. Continue the survey until all survey grids have been traversed.

5.2.6. Perform off-grid surveys in areas of anomalies.

5.3. Radiological Survey of On-Site Materials

5.3.1. Material that is excavated and placed in the clean stockpile will have been surveyed twice times. The first survey will be performed prior to excavation.

5.3.2. The second survey will be preformed during excavation of soil.

The soils will be surveyed before they are placed in the stockpile. Based on the survey results, the material will either be designated as contaminated material and loaded for transportation and disposal, or tentatively

designated as clean and stockpiled for subsequent soil sampling following the Soil Sampling Procedure.

5.4. Radiological Survey of On-Eguipment Materials

5.4.1. Backhoe buckets: Follow Ludlum 193 procedure over the exposed soil. Do not survey through the bucket. If there is more than two feet of soil in the bucket, resurvey the soil after it has been emptied.

5.4.2. Augers: Follow Ludlum 193 procedure while the soil is on the auger on all sides. If the auger is more than four feet in diameter, resurvey the soil after it has been spun off.

5.5. Daily Surveys

5.5.1. Routine daily surveys shall be performed for each day of the operations at the site.

5.5.2. Routine surveys will monitor areas in the immediate vicinity of excavations and along movement paths to ensure that radiation levels are not affected by activities.

5.5.3. Routine surveys shall be documented by preparing a drawing of the survey results in the field logbook, indicating either the location and value of the individual measurements or contours of the measured gamma radiation levels.

5.5.4. Surveys of the excavation areas will be made at the request of the XXX to assess the progress of the removal. These surveys need not be documented and will be used by the XXX to manage the excavation.

5.6. Pre-Verification Survey

5.6.1. Upon completion of excavation activities, either a pre-verification survey shall be performed to ensure that the excavation is ready for a final verification survey by USEPA, or a verification survey shall be performed to ensure that the excavation is ready for backfill based on USEPA approval.

5.6.2. Surveys are performed as specified in Sections 5.1 and 5.2. Upon completion of the survey and excavation phase, a Notification of Successful Pre-Verification or Verification is sent to the USEPA requesting approval to backfill.